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(54) AIR CUSHION GRIP WITH PUMP

HANDGRIFF MIT LUFTKISSEN VERSEHEN MIT EINER PUMPE

POIGNEE A COUSSIN D'AIR MUNIE D'UNE POMPE

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Descripti n

Background Of Th Invention

[0001] At present grips for tennis rackets, badminton rackets, bicycle handles, motorcycle handles, steering wheels of cars, hammers, jackhammers, etc., can be classified into two kinds. One kind is an elastic solid grip made of rubber or plastic, and the other is a hollow-sectioned grip made of rubber or plastic. The former, the solid grips, have no more than the elasticity of their material for absorbing and are thus without any additional structural benefits. So their elasticity is definite, not adjustable for various practical uses. The latter have the elasticity of the material plus that provided by a plurality of the hollow sections formed therein. So they can save more material and have better elasticity than the former. In spite of that, they still have drawbacks in that the elasticity of the material remains constant and the elasticity provided by the hollow sections is not changeable.

[0002] Those kinds of conventional grips cannot satisfy a variety of shock-absorbing functions for different objects or tools in practical use.

[0003] FR-A-1.108.034 and GB-A-1.048.123 disclose air cushion grips. The core of a handle is surrounded with a inflatable bladder. However no pump is provided.

Summary Of The Invention

[0004] In view of the defects of conventional grips mentioned above. an air cushion grip with a cubic supporting structure and shock-absorbing function in the present invention has been devised to have the following effects and functions.

1. It has an original structural shock-absorbing elasticity of P1V1 = P2V2, which represents the relationship between the cubic space and internal pressure, even when not inflated with air. Thus, the cubic space of an air cushion has a given constant pressure, whether or not inflated. When the cushion is depressed, the pressure is increased because of the reduced space. The pressure resumes its original value when the space resumes its original shape. Thus, the cubic or three-dimensional cushion provides elasticity when it is depressed.
2. It can be attached with an inflating means or a compressible pump to adjust the inner pressure to satisfy requirements of different users.
3. It has not only an ideal shock-absorbing elasticity but also a shock dispersive ability that is rarely seen in a conventional grip.
4. It can adapt to needs of different users, while lowering shock injury to a human body.
5. Its elasticity can be readily changed by a user to obtain a proper feel or a proper shock-avoiding effect, which is not possible in a conventional grip with a definite unchangeable elasticity.
6. It provides a grooved surface and a flat surface which maintains shape integrity after it is inflated with air to retain the original configuration and provide a smooth outer surface.

US-A-5.113.530 discloses a baseball glove with an inflatable chamber which is permanently connected to a pump for manually forcing air into the chamber and to a valve for releasing the air from the chamber upon ball contact. The inflated chamber softens the impact of the ball.

Brief Description Of The Drawings

[0005] Figure 1 is an elevational view of the first embodiment of an air cushion grip in the present invention.

[0006] Figure 2 is a cross-sectional view of line 2 - 2 in Figure 1.

[0007] Figure 3 is a cross-sectional view of line 3-3 in Figure 1.

[0008] Figure 4 is perspective view of a tennis racket fixed with the first embodiment of an air cushion grip in the present invention.

[0009] Figure 4-1 is a cross-sectional view of line 4-1 - 4-1 in Figure 4.

[0010] Figure 4-2 is a cross-sectional view of Figure 4.

[0011] Figure 4-3 is a cross-sectional view of Figure 4, with a different fixing method on a grip of a racket from Figure 4-2.

[0012] Figure 5 is an elevational view of the second embodiment of an air cushion grip in the present invention.

[0013] Figure 6 is a cross-sectional view of line 6 - 6 in Figure 5.

[0014] Figure 7 is a cross-sectional view of line 7 - 7 in Figure 5.

[0015] Figure 8 is an elevational view of the third embodiment of an air cushion grip in the present invention.

[0016] Figure 9 is a cross-sectional view of line 9 - 9 in Figure 8.

[0017] Figure 10 is a cross-sectional view of line 10 - 10 in Figure 8.

[0018] Figure 11 is a cross-sectional view of the second embodiment of an air cushion grip applied to a grip of an object.

[0019] Figure 12 is a cross-sectional view of the third embodiment of an air cushion grip applied to a grip of an object.

[0020] Figure 13 is a perspective view of an air cushion grip in the present invention practically applied to a bicycle handle.

[0021] Figure 13-1 is a cross-sectional view of line 13-1 - 13-1 in Figure 13.

[0022] Figure 14 is a perspective view of an air cushion grip in the present invention practically applied to a hammer.

[0023] Figure 14-1 is a cross-sectional view of line 14-1 - 14-1 in Figure 14.

[0024] Figure 15 is a perspective view of an air cushion grip in the present invention practically applied to a motorcycle handle.

[0025] Figure 15-1 is a cross-sectional view of line 15-1 - 15-1 in Figure 15.

[0026] Figure 16 is a perspective view of an air cushion grip in the present invention practically applied to a steering wheel of a car.

[0027] Figure 16-1 is a cross-sectional view of line 16-1 - 16-1 in Figure 16.

[0028] Figure 17 is a cross-sectional view of a compressible air pump to be connected with an air cushion grip in the present invention.

[0029] Figure 18 is a cross-sectional view of another compressible air pump to be connected with an air cushion grip in the present invention.

[0030] Figure 19 is an elevational view of the fourth embodiment of an air cushion grip in the present invention.

[0031] Figure 19-1 is a cross-sectional view of line 19-1- 19-1 in Figure 19.

[0032] Figure 19-2 is a cross-sectional view of the fourth embodiment of an air cushion grip wound in a round configuration.

[0033] Figure 20 is a cross-sectional view of the fifth embodiment of an air cushion handle applied on a grip of an object.

[0034] Figure 20-1 is an elevational view of the fifth embodiment of an air cushion grip shown in Figure 20.

[0035] Figure 21 is an elevational view of the sixth embodiment of an air cushion grip in the present invention.

[0036] Figure 21-1 is a cross-sectional view of line 21-1- 21-1 in Figure 21.

[0037] Figure 21-2 is a cross-sectional view of the sixth embodiment of an air cushion grip wound round.

[0038] Figures 22 - 26 depict five different embodiments of the invention as wide to a handle having a solid core, such as a tennis racket handle, and shown with associated air pumps and release valves.

[0039] Figure 27 depicts an embodiment of a flexible one-way air valve which may be used with the invention.

[0040] Figure 28 discloses a spring-biased release valve which may be used with the invention.

[0041] Figure 29 discloses a flexible air pump operable through compression by the thumb of a user and which may be used with the invention.

[0042] Figure 30 discloses a flexible air pump similar to that shown in Figure 29 and provided with a correspondingly configured cover member.

Detailed Description Of The Preferred Embodiments

[0043] The first embodiment of an air cushion grip with a cubic supporting structure and shock-absorbing function in the present invention, as shown in Figure 1, comprises an air cushion I consisting of an out r layer of flat surface and a bottom layer having a plurality of round and/or straight long grooves 11 to form a three dimensional surface which can be mixed with curved, sloped-up or sloped-down and flat portions.

[0044] The vertical walls of straight grooves 11 form a plurality of cubic air cells 12 that are either independent or communicate with one another. When cells 12 do not communicate with one another, they are independent and have a certain inner pressure.

[0045] When cells 12 are made to communicate with one another, passage tubes 121 of triangle, trapezoid, semi-circular, etc. are placed across the walls of straight grooves 11. A round hollow tube 13 can be attached to any of the communicating air cells 12 and a one-way valve 131, as seen in Fig. 4, can be connected with the outer end of the tube 13. The one-way valve 131 may be a rubber valve or an air valve used in a bicycle tire. Both side edges 14, right and left, are to be glued together, shaping this air cushion grip into a cylindrical configuration to fit around a handle of an object. The surface of the bottom layer and the height of the air cushion cells 12 can be such that the inner wall of the cross-section of the cylindrical grip can be circular, hexagonal, square, octagonal, etc., and the outer wall can be circular, square, hexagonal, octagonal, etc. so that this grip can be applied to handles of rackets or tools of any shape.

[0046] When the first embodiment of an air cushion grip in the present invention has been applied around a grip of a tennis racket, positioned between a flake 15 and a heel 16 as shown in Figures 4, 4-1, 4-2, 4-3, an outer enveloping layer B can be bound on the air cushion grip, and the one-way valve 131 is positioned to extend to the flake 15 or the heel 16 for inflating the air cushion grip, as show in Figure 4-1. Or, as shown in Figure 4-2, a layer of double-side glued tape Al is first wound around the grip of a racket, and then the air cushion grip and the outer enveloping layer B are thereafter bound on thereto. Alternatively, as shown in Figure 4-3, a PU or polyurethane foam layer D is first bound on the air cushion grip and the outer enveloping layer B is then bound on the foam layer D.

[0047] The second embodiment of an air cushion grip is shown in Figure 5, having an air cushion consisting of a plurality of partial air cushions 2, which comprises an outer flat layer and a bottom layer having a plurality of round grooves and/or straight long grooves 11 joining the bottom layer with the outer layer. The vertical walls of the straight grooves 11 form a plurality of air cells 12 that are either independent or communicate with one another. The partial air cushions 2 can be made to communicate with one another by means of passage tubes 121 so that the air cells 12 communicating with one another may become a group of air cells communicating with one another. A hollow tube 13 can be provided to extend out of an air cell 12 for connecting to a one-way valve to inflate said partial air cushion 2. If the partial air cushions 2 are independent, each cushion 2 can be provided with an inflating means.

[0048] The third embodiment of an air cushion grip is

shown in Figures 8 - 12, having an air cushion 3 and a front flake 15 and/or heel 16 connected and communicating with the air cushion 3, which is the same as cushions 1, 2 in the first and second embodiments.

[0049] Figures 13 - 16 show the air cushion grips in the present invention in practical use and applied to a bicycle handle, a hammer a motorcycle handle and a steering wheel of a car. They have wide applications and are not limited to one object only.

[0050] The method of connecting the right edge with the left edge of the air cushion 1, 2 or 3 in forming it into a cylindrical grip can be accomplished by gluing or by button holes 141 and buttons 142 fitting in the button holes 141 and then fused together with heat.

[0051] Air cushions for grips according to the invention may also have an outer flat layer and a bottom layer that is not flat but having a plurality of grooves and air cells that are either independent or communicate with one another and of different heights so that they can conform to any shape handle of a racket, a tool, etc.

[0052] If an air cushion is needed to be applied on a multi-gonal object, more than a square, with corner lines, protruding lines 17 are formed on the outer surface of the outer layer at positions corresponding to the corner lines of the object. Then the corner lines will be very sharp after the air cushion grip is fixed around the object. The protruding lines 17 can be square, triangular, semicircular, etc.

[0053] An air cushion grip in the present invention can be made as a completely sealed air cushion grip without any inflating valves, and having a certain definite interior pressure. It can also be attached with a manual compressible pump as shown in Figure 18, which consists of a bellows-like flexible hollow tube 13 connected with a plurality of communicating air cells 12. a one-way outlet valve 131 between the air cell 12 and the inner end of said tube 13 and a one-way inlet valve 132 at the outer end of the tube 13. Then the tube 13 can be compressed or released to inflate air into the air cushion through the valves 131, 132. In addition, a pressure releasing rod 133 can be added to extend inward through the inlet valve 132 to open the outlet valve 131 and deflate the air from the air cushion.

[0054] Figure 17 shows an outlet valve 122 attached between an outermost air cell 12 and an inner air cell 12 communicating with other air cells 12. An inlet valve 123 can be attached to the outermost air cell 12 and compressed repeatedly to suck the outside air into the inlet valve 123 and through the outlet valve 122 and into the air cushion.

[0055] A hollow tube 13 leading to the outside air can be attached to an outermost air cell 12 communicating with air cells 12 in an air cushion grip, as shown in Figures 13 - 16 applied to a racket, a tool, a handle of a bicycle or a motorcycle, or steering wheel of a car. Then a pressure adjusting or releasing valve can be connected with the tube 13.

[0056] Figures 19, 19-1, 19-2 show an air cushion grip having an outer flat layer provided with a plurality of projecting points or lines 10 which provide grip friction, thus preventing a hand holding the grip from sliding off.

[0057] Figures 21, 21-1, 21-2 show an air cushion grip having an outer layer provided with a plurality of round and/or straight grooves 11, just like the bottom layer, so that each straight groove 11 in the outer layer has the bottom fused with each straight groove 11 in the bottom layer. This structure can provide grip friction and prevent a hand from sliding off by air circulation through the grooves 11.

[0058] As is apparent from the foregoing descriptions, the cushion grip of the invention includes cubic air cells defined by intersecting planes forming desired cross-sectional configurations which permit the air cushion to be wrapped around a handle of a given configuration so that the inner surfaces of the cells engage and conform to the configuration of the handle. This produces a uniform and overlapping engagement between the inner surfaces of the air cells and the corresponding surfaces of the handle so that the outer surfaces of the cushion form a grip having the exact configuration as that of the original handle. This is well exemplified in Figs. 4-1 through 4-3, Figs. 13 and 13-1, Figs. 14 and 14-1, Figs. 15 and 15-1, and Figs. 16 and 16-1.

[0059] The air cushion handle may be fixed on a grip of an object as follows.

1. It is placed around a handle of an object, for example, a racket, properly positioned between a flake and a heel, and then an outer enveloping layer B is bound thereon as shown in Figure 4.
2. A handle of a tool shown in Figure 20 is first fixed with a base sheet C provided with a number of fastening buttons CI, and then an air cushion grip is placed in a shallow recess in the base sheet C, being adjusted to position button holes 101 provided in the round or straight grooves 11 in alignment for insertion by the fastening buttons CI, and thus the air cushion grip is held firmly on the handle of the tool. Then the air cushion grip is kept exposed, making it convenient for replacing an old one by a new one if the air cushion grip should be damaged. The base sheet C may also be made from elastic material having a shock-absorbing effect, without fastening buttons CI but with a recessed cavity for receiving the air cushion grip.

[0060] The outer enveloping layer B can be either a narrow slip of leather, cloth, foam etc, wound partially or wholly cover the air cushion grip, or a foam directly enveloped around the air cushion grip. The air cushion grip can also be applied inside out, with the original outer flat layer serving as the bottom layer and the original bottom layer as the outer layer to expose the grooves.

[0061] With reference to Figures 22 - 26, there are shown five different embodiments of an air cushion grip 200 in association with a handle structure of the type

including a solid core 201, such as a tennis racket handle or the like. In these embodiments, the handle structure further includes a flake portion 203 and a heel portion 204, such as conventionally associated with a sport racket handle. Both flake and heel portions 203, 204 may be formed of any appropriate material and structure, for example, a resilient and compressible material such as rubber or plastic. However, it is to be understood that these embodiments of the invention can also be advantageously utilized with other handle structures having central cores, such as those associated with hammers, vehicle steering wheels, crutches, handle bars, various tool handles and the like. The common aspect of the embodiment shown in Figures 22 - 26 resides in the inclusion of an air pump that is permanently or substantially permanently secured to cushion grip 200 for inflating same as desired by the user without requiring the attachment and detachment of a separate air pump. This aspect of the invention affords a unique advantage to the user since it is now possible for the user to vary the degree of cushioning effect for cushion grip 200 during use of the racket or other implement with which cushion grip 200 is associated.

[0062] As further shown in Figures 22 - 26, cushion grip 200 includes an outer layer 205 formed of appropriate cushion material, such as cloth, plastic or leather, and an internal air bladder 207 incorporating the cubic supporting structure previously shown and described herein. Cushion grip 200 is also provided with an air pump 209, the latter being preferably substantially permanently secured to air bladder 207 of cushion grip 200, and an air release valve 211.

[0063] As seen in Figure 22, air pump 209 may be of a flexible type which is activated by compressing the corresponding portion of outer layer 205 enclosing pump 209. Pump 209 is connected in fluid communication to a cell of air bladder 207 through an appropriate one-way inlet valve that is in turn connected to bladder 207 by a channel for providing fluid communication between the one-way inlet valvue and bladder 207. Air bladder 207 is also provided with an appropriate one-way valve member 213 so that activation of pump 209 serves to inflate air bladder 207. Release valve 211 is preferably manually actuated and permits the deflation of air bladder 207 through a vent hole 215. Air pump 209, one-way valve member 213 and release valve 215 are all situated adjacent heel 204 in this embodiment.

[0064] The embodiment in Figure 23 disposes air pump 209 and release valve 211 within heel 204. Activation of pump 209 directs air into air bladder 207 through a connecting passage 217 formed in heel 204. Likewise, deflation of bladder 207 is realized through activation of release valve 211 and the venting of air therethrough.

[0065] In the embodiment shown in Figure 24, air pump 209 is positioned adjacent flake portion 203 for pumping air into bladder 207 through an inlet passage 219. Release valve 211 is positioned at heel 204 and is in fluid communication with bladder 207 through a connecting channel 218.

[0066] As seen in Figure 25, release valve 211 is positioned in flake portion 203, while air pump 209 is disposed within heel portion 204. This arrangement is essentially the reverse of the embodiment shown in Figure 24.

[0067] The embodiment shown in Figure 26 positions air pump 209 and release valve 211 at the exterior of heel portion 204.

[0068] A preferred structure of one-way air valve member 213 is shown in Fig. 27. Valve member 213 is formed from resilient material, such as rubber or plastic, and includes an air inlet passage 219 and an air outlet passage 221, the latter being defined by a slit which opens in response to compressed air through inlet passage 219. Valve member 213 may be utilized within bladder 207 either adjacent air pump 209 or at any other desired location for admitting and maintaining air pressure within bladder 207.

[0069] A preferred structure of air release valve 211 is depicted in Figure 28. Release valve 211 includes a valve member 223 which normally seats against and closes an inlet passage 225 under the bias of a coil spring 227 when valve member 223 is urged inwardly by pressing an actuator 229, air is permitted to pass through inlet passage 225 and vent through an outlet passage 231 to the atmosphere. The structural configuration of release valve 211 may of course be modified depending upon its location of use in the practice of the invention and as also exemplified in the different embodiments depicted in Figures 22 - 26.

[0070] Figures 29 and 30 depict a preferred structure of air pump 209 which may be used in the practice of the invention. As seen in Fig. 29, air pump 209 comprises a dome-shaped pump body 233 formed of resilient material, such as rubber or plastic. An air inlet hole 235 is formed at the top of body 233. When the latter is compressed by a thumb 237 of a user, air entering body 233 through hole 235 is compressed and forced out an outlet 239 that includes an appropriate one-way valve member, such as member 213 of Figure 27. The embodiment in Figure 30 includes a cover member 241 disposed over body 233, thus requiring the user to press against cover 241 in order to compress body 233. Cover 241 may form a part of flake portion 203, heel portion 204 or outer layer 205 of the embodiments shown in Figures 22 - 26. A one-way valve member is also provided in outlet 239 of this embodiment. It is also apparent from Figures 29 and 30 that inlet hole 235 of body 233 automatically functions as a one-way valve since either thumb 237 or cover 241 effectively seals opening 235 and prevents air from escaping during compression of body 233.

Claims

1. A handle cushion grip (200) of the type wherein the handle includes a central core body (201) surrounded at least in part by an inflatable air bladder (207) enclosed within an outer layer (205) of cushion material, characterised by an air pump (209) substantially permanently secured to the air bladder (207) for inflating same.

2. The handle cushion grip (200) of claim 1 further including an air release valve (211) substantially permanently secured to the air bladder (207) for releasing air therefrom.

3. The handle cushion grip (200) of claim 2 further including a channel connecting the air bladder (207) with the release valve (211) for providing fluid communication therebetween.

4. The handle cushion grip (200) of claim 2 wherein the release valve includes an inlet passage (225) terminating in a valve seat, a spring (227) biased valve member (223) engaging the valve seat and maintaining the iniet passage (225) in a normally closed position, and an outlet passage (231) venting to the atmosphere.

5. The handle cushion grip (200) of claim 2 further of the type including a flake portion (203) and a heel portion (204), and wherein the air pump (209) and release valve (211) are substantially entirely enclosed by the outer layer (205) of cushion material and positioned adjacent the heel portion (204).

6. The handle cushion grip (200) of claim 2 further of the type including a flake portion (203) and a heel portion (204), and wherein the air pump (209) and release valve (211) are substantially fully enclosed within the heel portion (204).

7. The handle cushion grip (200) of claim 2 further of the type including a flake portion (203) and a heel portion (204), and wherein the air pump is disposed at the flake portion and the release valve is disposed within the heel portion.

8. The handle cushion grip (200) of claim 2 further of the type including a flake portion (203) and a heel portion (204), and wherein the air pump (209) is disposed within the heel portion (204) and the release valve (211) is disposed within the flake portion (203).

9. The handle cushion grip (200) of claim 2 further of the type including a flake portion (203) and a heel portion (204), and wherein the air pump (209) and release valve (211) are disposed adjacent to and exteriorly of the heel portion (204).

10. The handle cushion grip (200) of claim 1 further including a one-way air inlet valve in fluid communication with the air pump (209) for directing and maintaining compressed air into the air bladder (207).

11. The handle cushion grip (200) of claim 10 further including a channel connecting the air bladder (207) with the one-way air inlet valve for providing fluid communication therebetween.

12. The handle cushion grip (200) of claim 1 wherein the air pump (209) includes a resilient compressible pump body (233) provided with an inlet hole (235) therethrough, an outlet (239) and a one-way valve member (213) at the outlet (239).

13. The handle cushion grip (200) of claim 1 further of the type including a flake portion (203) and a heel portion (204) and wherein at least one of the portions being formed of a resilient and compressible material.

14. The handle cushion grip (200) of claim 13 wherein both the flake and heel portions (203, 204) are formed of a resilient and compressible material.

Patentansprüche

1. Ein Luftkissen-Handgriff (200) des Typs, worin der Handgriff einen zentralen Kernkörper (201) enthält, der zumindest teilweise von einem aufblasbaren, innerhalb einer äußeren Schicht (205) von Kissenmaterial eingeschlossenen Luftschlauch (207) umgeben ist, gekennzeichnet durch eine Luftpumpe (209), die zum Aufblasen des Luftschlauchs (207) hauptsächlich permanent an diesem befestigt ist.

2. Der Luftkissen-Handgriff (200) von Anspruch 1, der weiterhin ein Luftablassventil (211) enthält, das zum Ablassen der Luft aus dem Luftschlauch (207) hauptsächlich permanent an diesem befestigt ist.

3. Der Luftkissen-Handgriff (200) von Anspruch 2, der weiterhin einen Kanal enthält, der den Luftschlauch (207) mit dem Ablassventil (211) verbindet, um für eine Fluidverbindung zwischen diesen zu sorgen.

4. Der Luftkissen-Handgriff (200) von Anspruch 2, worin das Ablassventil einen Einlass-Durchgang (225) enthält, der in einem Ventilsitz endet, ein mit einer Feder (227) versehenes Ventilorgan (223), das in den Ventilsitz eingreift und den Einlass-Durchgang (225) in einer normalerweise geschlossenen Position hält, und einen in die Atmosphäre

mündenden Auslass-Durchgang (231).

5. Der Luftkissen-Handgriff (200) von Anspruch 2, weiterhin des Typs, der einen abgeflachten Bereich (203) und einen Endbereich (204) enthält, und worin die Luftpumpe (209) und das Ablassventil (211) hauptsächlich vollständig von der äußeren Schicht (205) von Kissenmaterial eingeschlossen und nächst dem Endbereich (204) positioniert sind.

6. Der Luftkissen-Handgriff (200) von Anspruch 2, weiterhin des Typs, der einen abgeflachten Bereich (203) und einen Endbereich (204) enthält, und worin die Luftpumpe (209) und das Ablassventil (211) hauptsächlich vollständig in den Endbereich (204) eingeschlossen sind.

7. Der Luftkissen-Handgriff (200) von Anspruch 2, weiterhin des Typs, der einen abgeflachten Bereich (203) und einen Endbereich (204) enthält, und worin die Luftpumpe an dem abgeflachten Bereich und das Ablassventil innerhalb des Endbereichs angeordnet ist.

8. Der Luftkissen-Handgriff (200) von Anspruch 2, weiterhin des Typs, der einen abgeflachten Bereich (203) und einen Endbereich (204) enthält, und worin die Luftpumpe (209) innerhalb des Endbereichs (204) und das Ablassventil (211) innerhalb des abgeschrägten Bereichs (203) angeordnet ist.

9. Der Luftkissen-Handgriff (200) von Anspruch 2, weiterhin des Typs, der einen abgeflachten Bereich (203) und einen Endbereich (204) enthält, und worin die Luftpumpe (209) und das Ablassventil (211) benachbart zu und außerhalb von dem Endbereich (204) angeordnet sind.

10. Der Luftkissen-Handgriff (200) von Anspruch 1, der weiterhin ein Einweg-Lufteinlassventil in Fluidverbindung mit der Luftpumpe (209) enthält, um Druckluft in den Luftschlauch (207) zu leiten und darin zu halten.

11. Der Luftkissen-Handgriff (200) von Anspruch 10, der weiterhin einen Kanal enthält, der den Luftschlauch (207) mit dem Einweg-Lufteinlassventil verbindet, um für eine Fluidverbindung zwischen diesen zu sorgen.

12. Der Luftkissen-Handgriff (200) von Anspruch 1, worin die Luftpumpe (209) einen nachgiebigen, komprimierbaren Pumpenkörper (233) enthält, der mit einer Einlassöffnung (235) hierdurch, einem Auslass (239) und einem Einweg-Ventilorgan (213) am Auslass (239) versehen ist.

13. Der Luftkissen-Handgriff (200) von Anspruch 1, weiterhin des Typs, der einen abgeflachten Bereich (203) und einen Endbereich (204) enthält, worin zumindest einer dieser Bereiche aus einem nachgiebigen und komprimierbaren Material geformt ist.

14. Der Luftkissen-Handgriff (200) von Anspruch 13, worin sowohl der abgeflachte als auch der Endbereich (203,204) aus einem nachgiebigen und komprimierbaren Material geformt sind.

Revendications

1. Manchon antichoc (200) pour manche ou pour poignée du type dans lequel le manche ou la poignée englobe un corps (201) formant la partie centrale, entouré au moins en partie par une vessie pneumatique gonflable (207) enrobée d'une couche externe (205) d'une matière de rembourrage, caractérisé par une pompe à air (209) fixée essentiellement en permanence à la vessie pneumatique (207) à des fins de gonflage de cette dernière.

2. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 1, englobant en outre une soupape de libération d'air (211) fixée essentiellement en permanence à la vessie pneumatique (207) pour libérer l'air de cette dernière.

3. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 2, englobant en outre un canal reliant la vessie pneumatique (207) à la soupape de libération (211) pour procurer une communication de fluide entre elles.

4. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 2, dans lequel la soupape de libération englobe un passage d'entrée (225) se terminant dans un siège de soupape, un élément de soupape (223) mis en état de précontrainte à l'aide d'un ressort (227) entrant en contact avec le siège de soupape et maintenant le passage d'entrée (225) dans une position normalement fermée, et un passage de sortie (231) débouchant dans l'atmosphère.

5. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 2, en outre du type englobant une portion de lamelle (203) et une portion de talon (204) et dans lequel la pompe à air (209) et la soupape de libération (211) sont enrobées de manière essentiellement complète par la couche externe (205) d'une matière de rembourrage et sont disposées en position adjacente à la portion de talon (204).

6. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 2, en outre du type en-

globant une portion de lamelle (203) et une portion de talon (204) et dans lequel la pompe à air (209) et la soupape de libération (211) sont enrobées de manière essentiellement complète dans la portion de talon (204).

7. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 2, en outre du type englobant une portion de lamelle (203) et une portion de talon (204) et dans lequel la pompe à air est disposée dans la portion de lamelle, la soupape de libération étant disposée dans la portion de talon.

8. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 2, en outre du type englobant une portion de lamelle (203) et une portion de talon (204) et dans lequel la pompe à air (209) est disposée dans la portion de talon (204), la soupape de libération (211) étant disposée dans la portion de lamelle (203).

9. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 2, en outre du type englobant une portion de lamelle (203) et une portion de talon (204) et dans lequel la pompe à air (209) et la soupape de libération (211) sont placées en position adjacente à la portion de talon (204) et à l'extérieur de cette dernière.

10. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 1, englobant en outre une soupape d'entrée unidirectionnelle pour l'air en communication de fluide avec la pompe à air (209) pour diriger et maintenir de l'air comprimé dans la vessie pneumatique (207).

11. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 2, englobant en outre un canal reliant la vessie pneumatique (207) à la soupape d'entrée unidirectionnelle pour l'air pour procurer une communication de fluide entre elles.

12. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 1, dans lequel la pompe à air (209) englobe un corps de pompe (233) compressible et résilient que traverse un trou d'entrée (235), une sortie (239) et un élément de soupape unidirectionnelle (213) à la sortie (239).

13. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 1, en outre du type englobant une portion de lamelle (203) et une portion de talon (204) et dans lequel au moins une des portions est formée à partir d'une matière résiliente et compressible.

14. Manchon antichoc (200) pour manche ou pour poignée selon la revendication 13, dans lequel à la fois la portion de lamelle et la portion de talon (203, 204) sont formées à partir d'une matière résiliente et compressible.

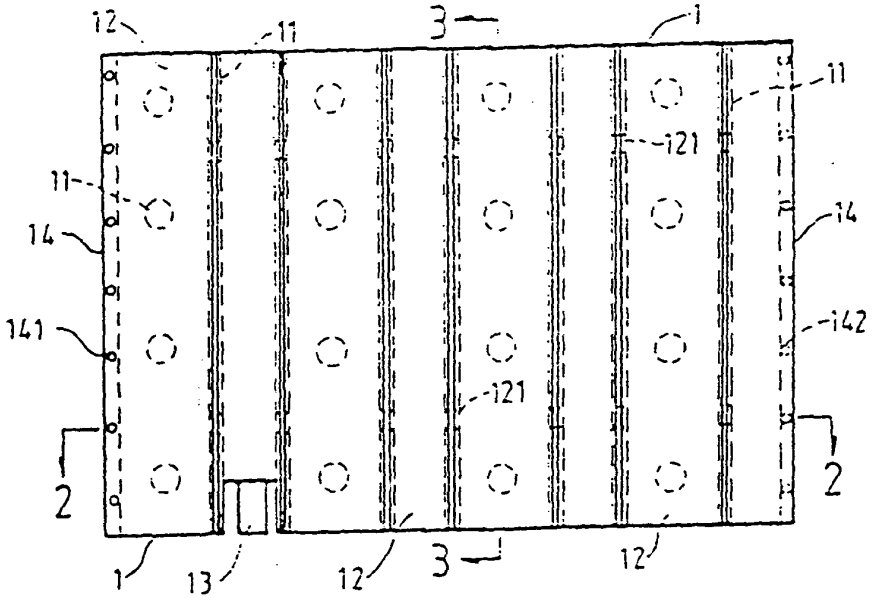

Fig.1

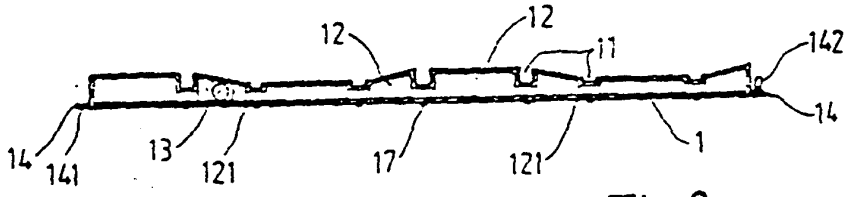

Fig.2

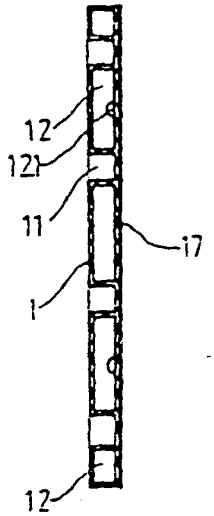

Fig.3

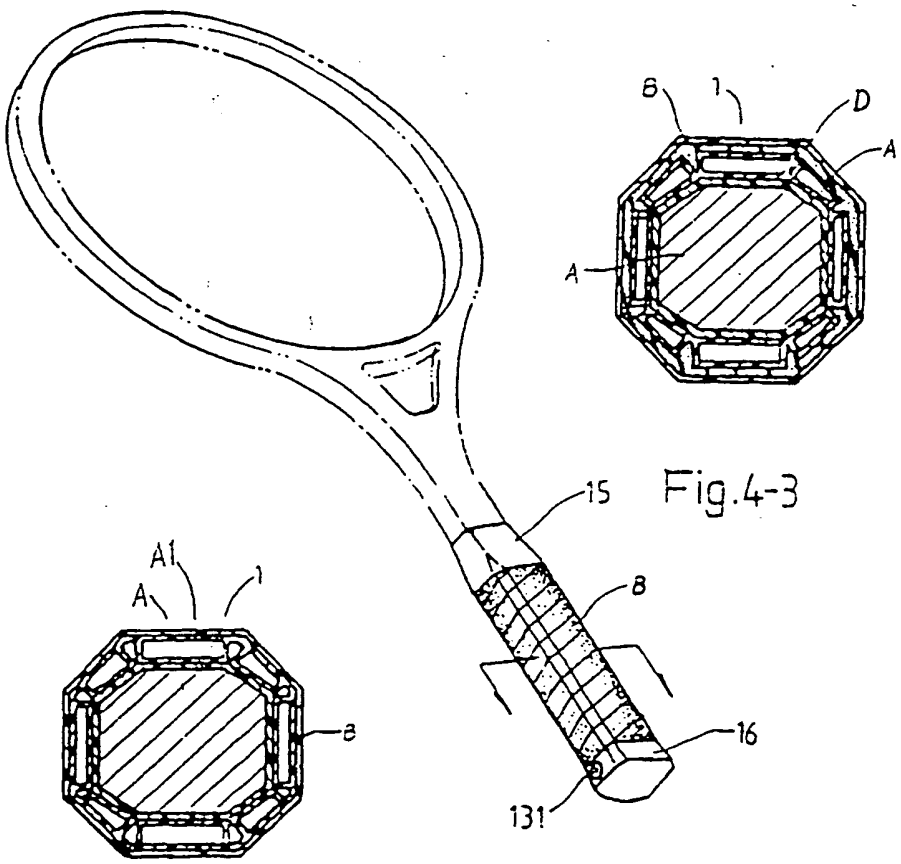

Fig.4

Fig.4-3

Fig.4-2

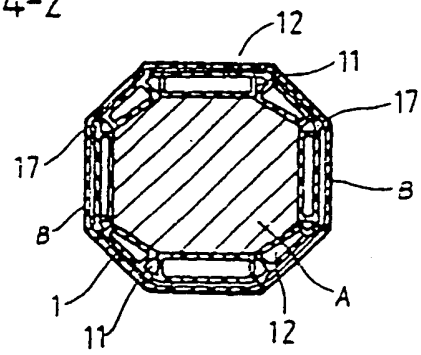

Fig.4-1

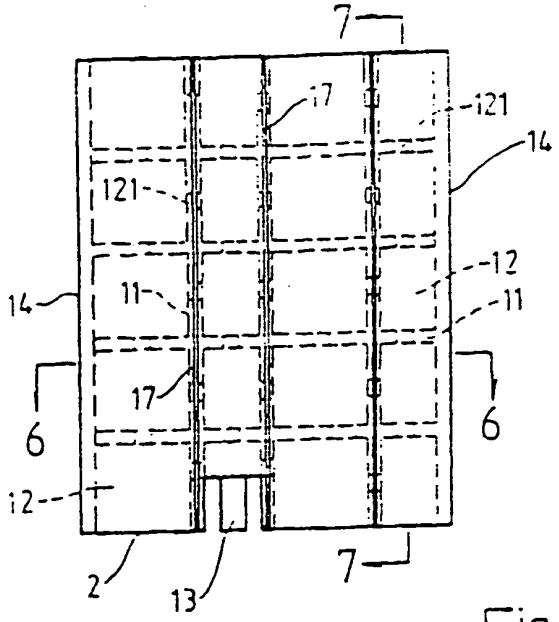

Fig.5

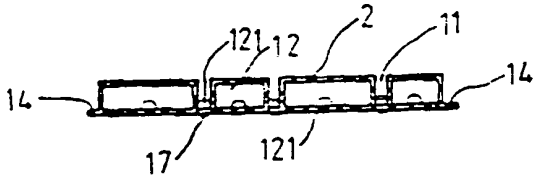

Fig. 6

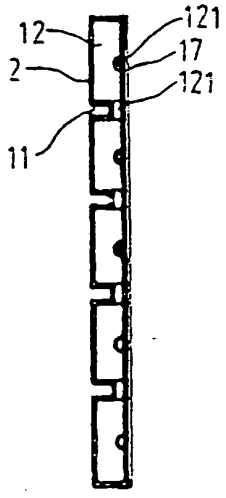

Fig. 7

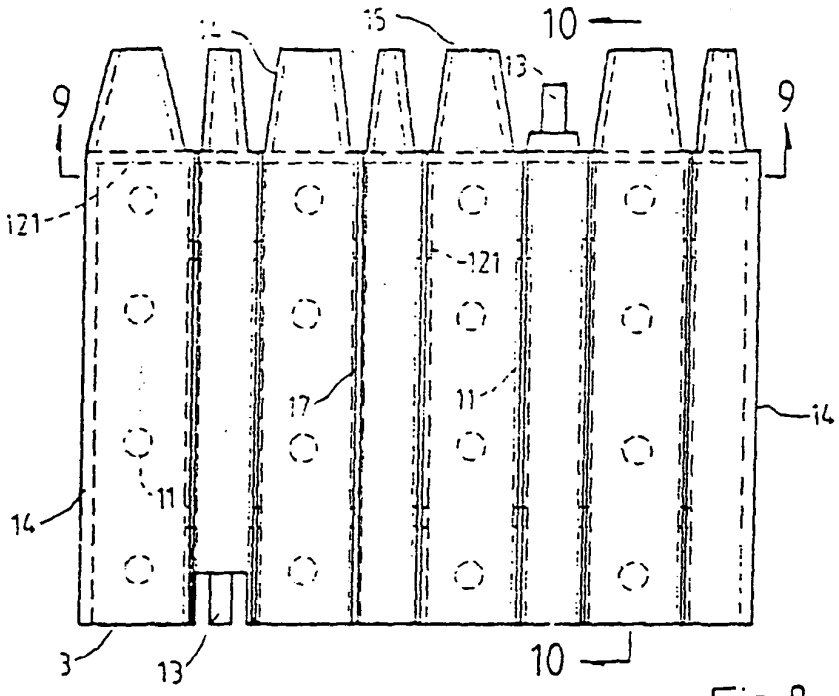

Fig.8

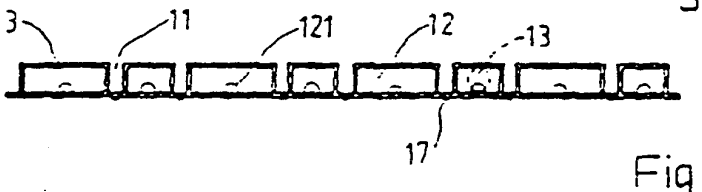

Fig.9

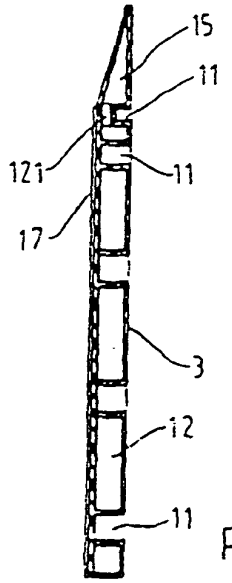

Fig.10

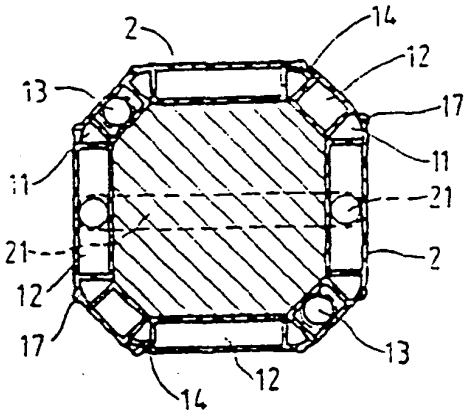
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Fig.11

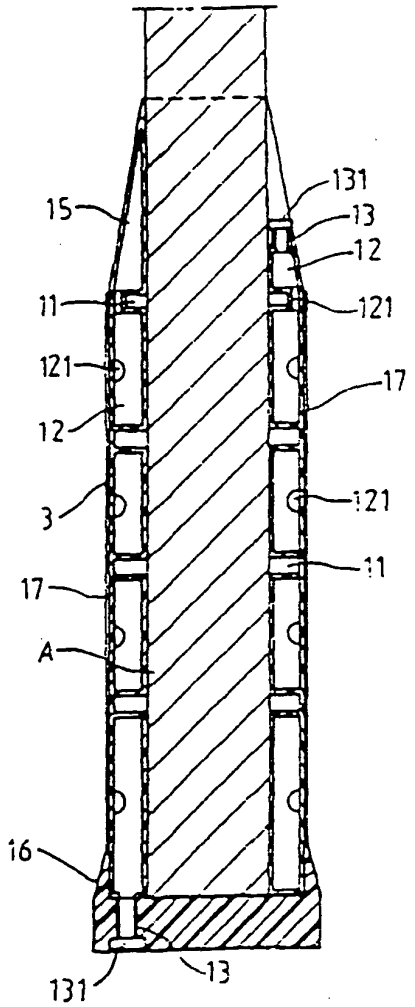
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Fig.12

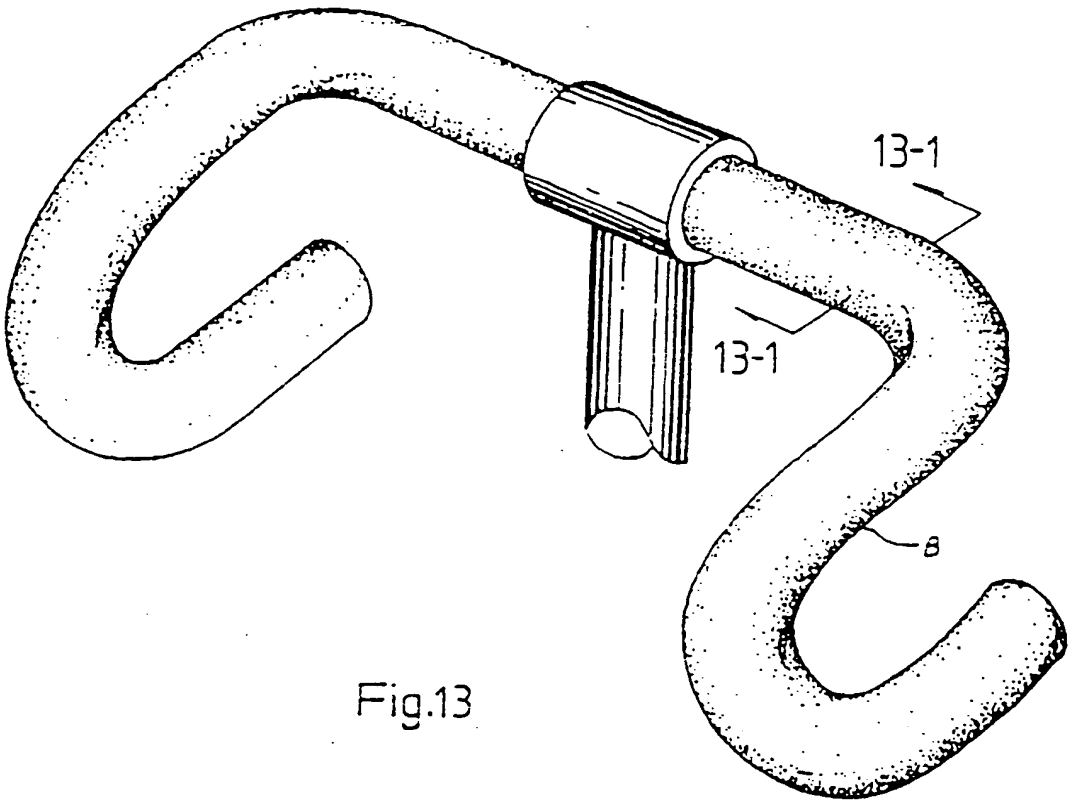

Fig.13

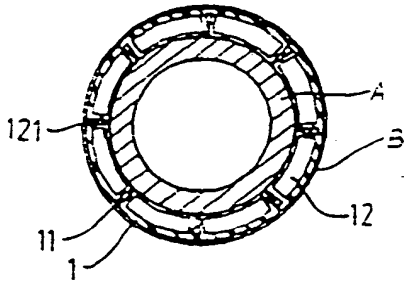

Fig.13-1

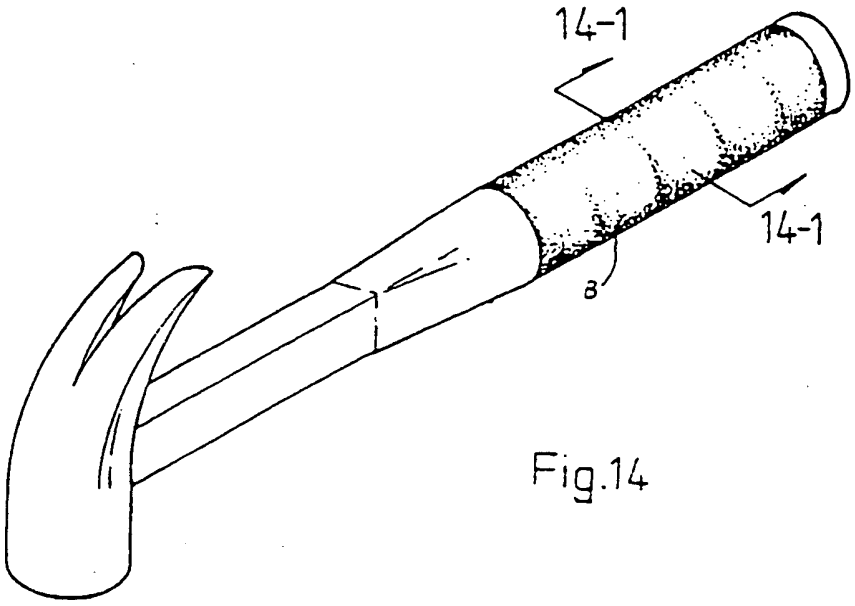

Fig.14

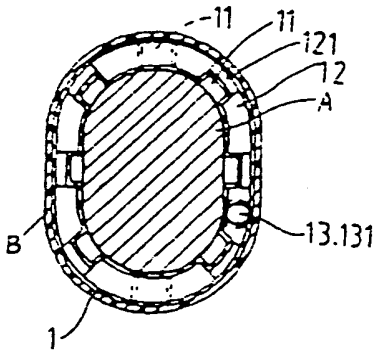

Fig.14-1

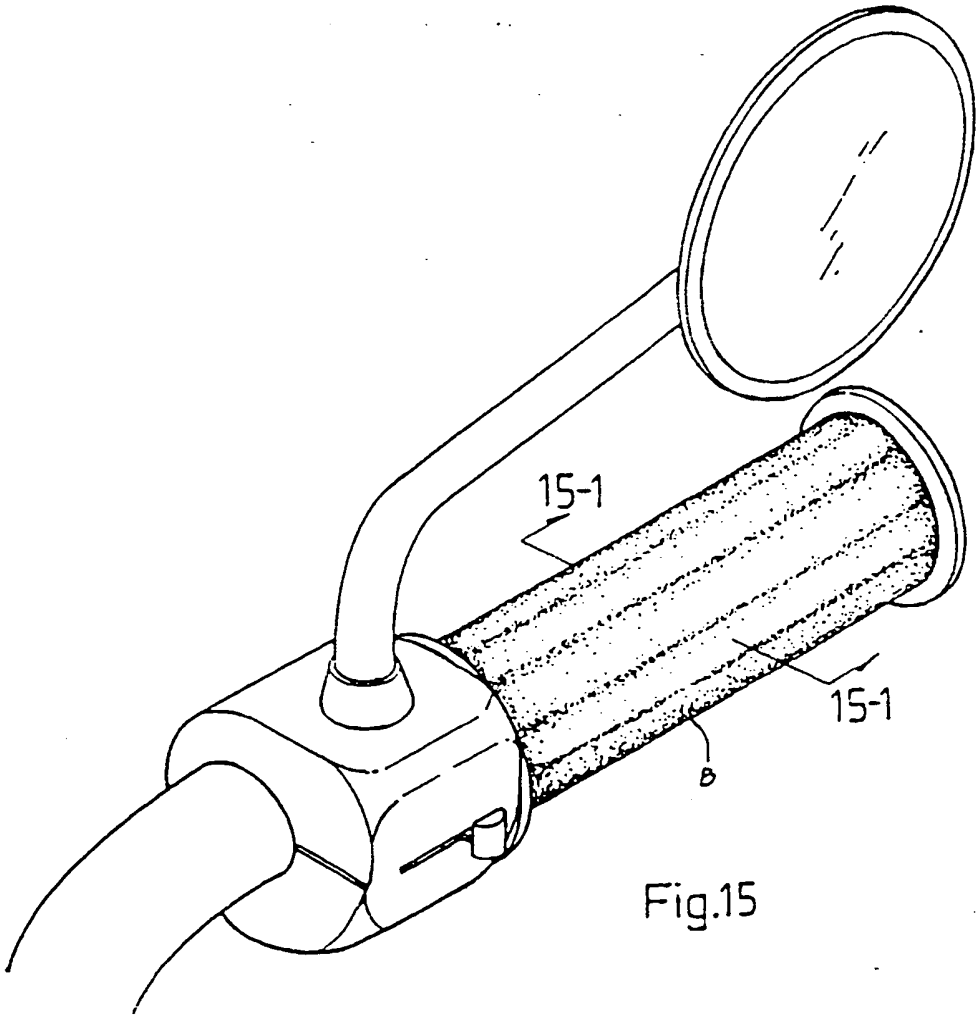

Fig.15

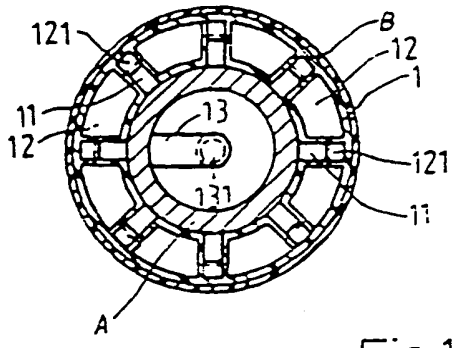

Fig.15-1

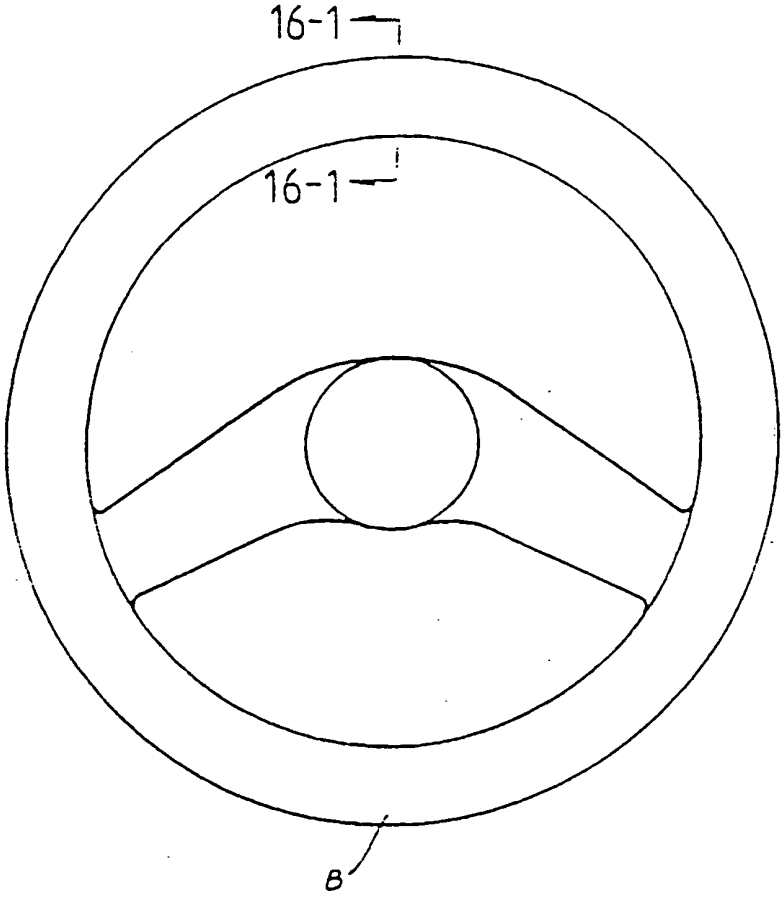

Fig.16

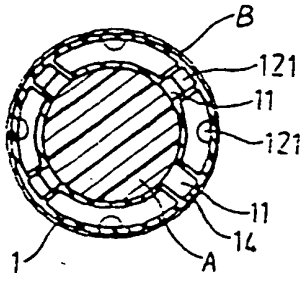

Fig.16-1

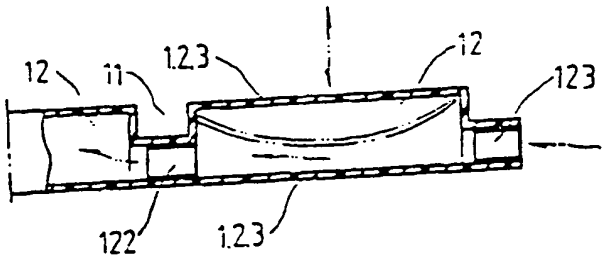

Fig.17

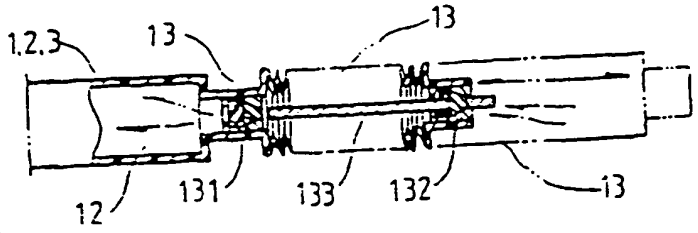

Fig.18

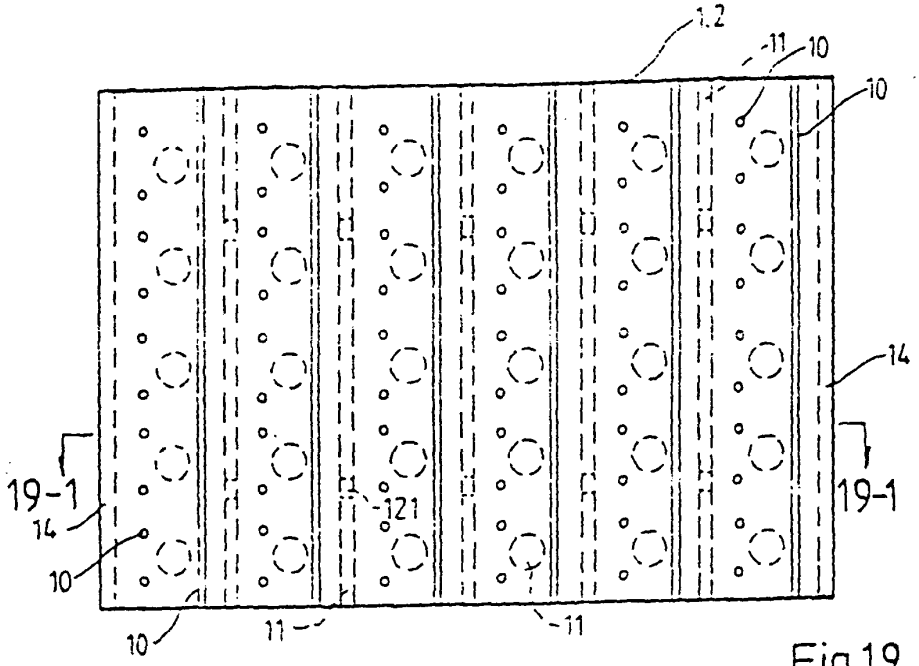

Fig.19

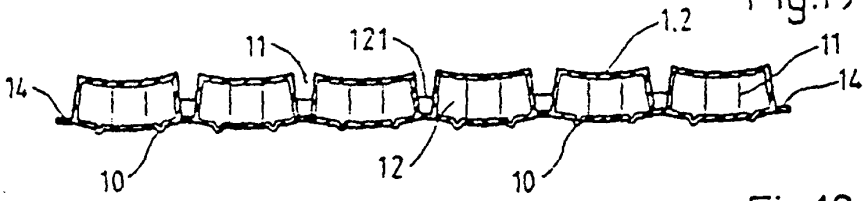

Fig.19-1

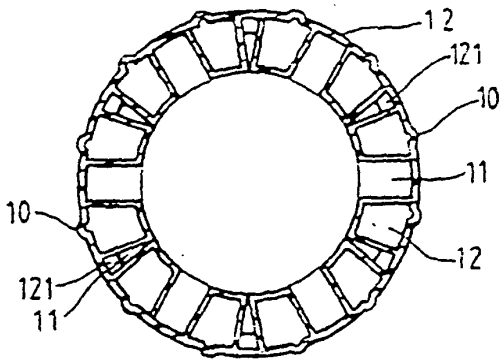

Fig.19-2

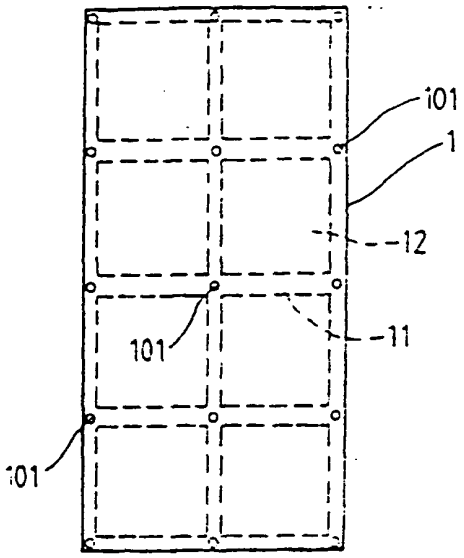

Fig.20-1

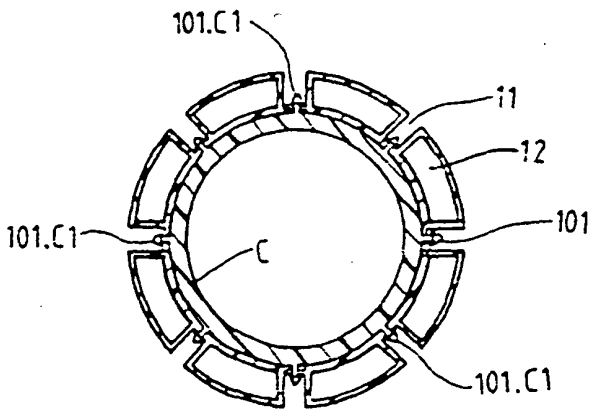

Fig.20

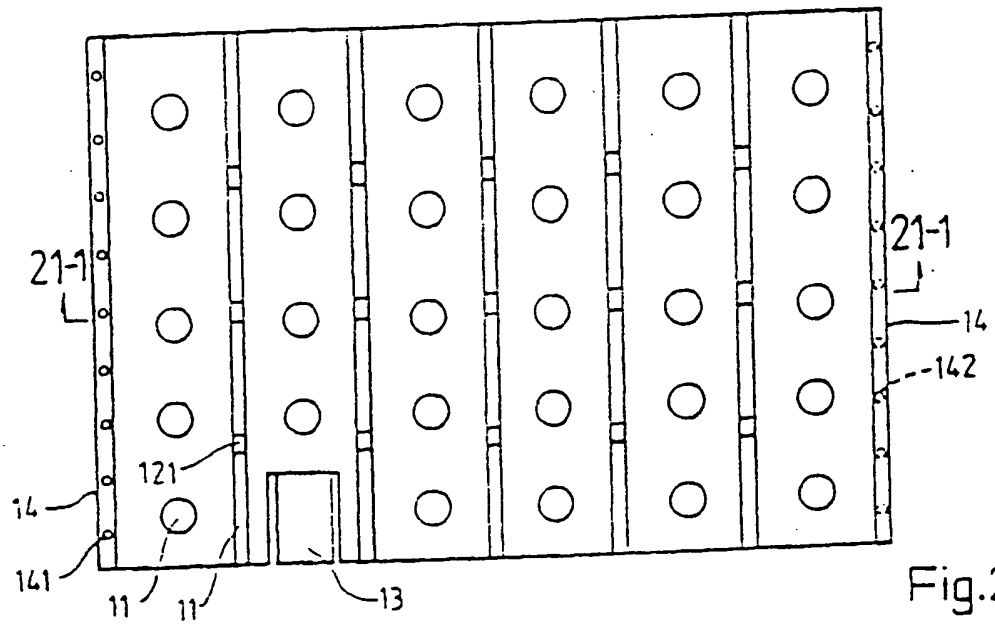

Fig.21

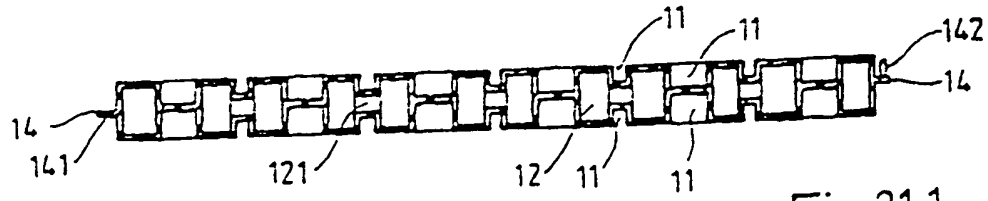

Fig.21-1

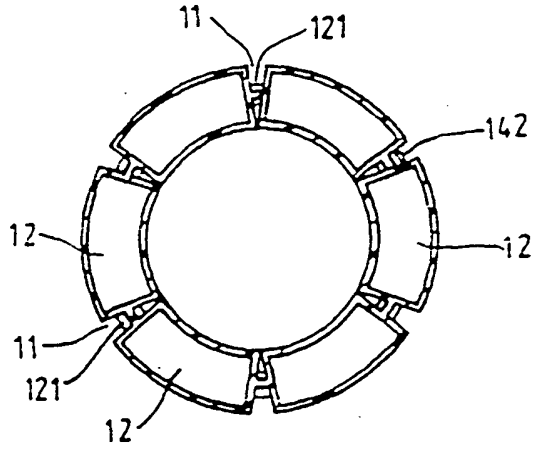

Fig.21-2

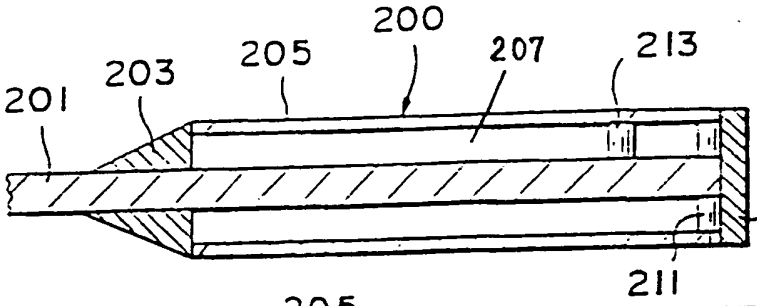

Fig. 22

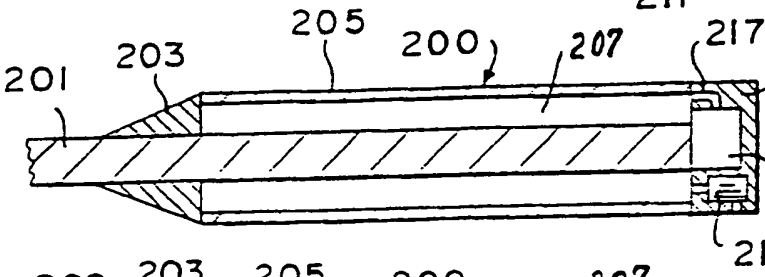

Fig. 23

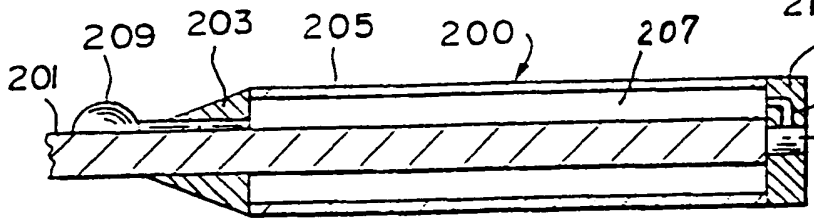

FIG. 24

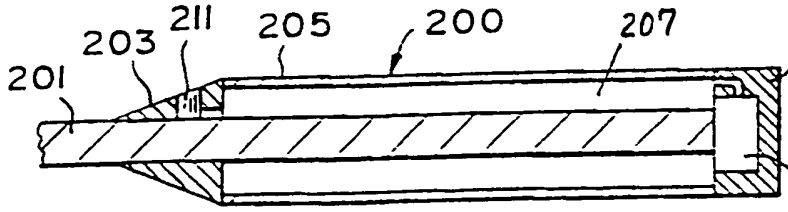

Fig. 25

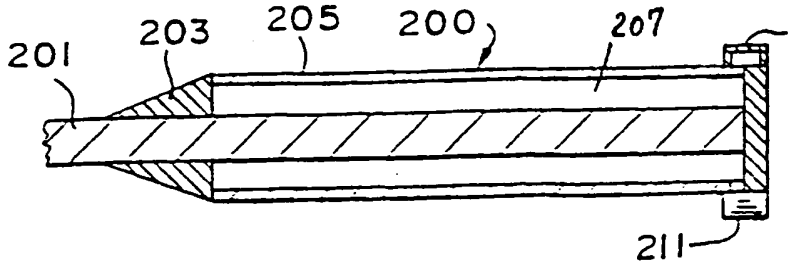

Fig. 26

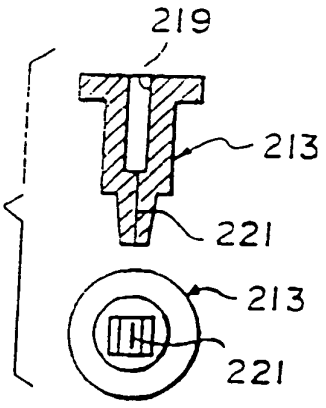

Fig. 27

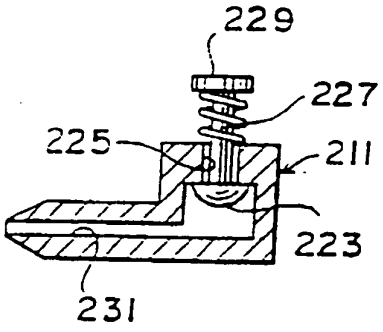

Fig. 28

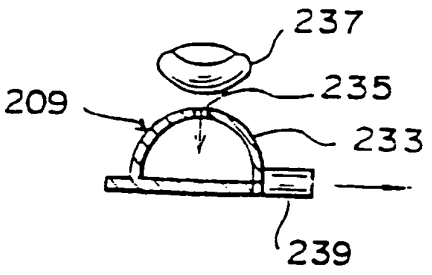

Fig. 29

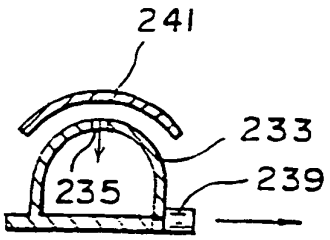

Fig. 30